CLAIMS

What is claimed is:

1. A teatcup liner series comprising in combination a family of related teatcup liners, each liner having an upper mouthpiece and a barrel depending downwardly from said upper mouthpiece, said barrel extending axially along an axis for receiving a teat inserted axially thereinto through said mouthpiece, said teatcup liner series comprising n liners L_1 through L_n, wherein the material of at least one of said mouthpiece and said barrel progressively varies in hardness from L_1 to L_n.

2. The teatcup liner series according to claim 1 wherein the material of said mouthpiece progressively increases in hardness from L_1 to L_n.

3. The teatcup liner series according to claim 1 wherein the material of said barrel progressively decreases in hardness from L_1 to L_n.

4. The teatcup liner series according to claim 1 wherein in combination the material of both said mouthpiece and said barrel progressively vary from L_1 to L_n.

5. The teatcup liner series according to claim 1 wherein the material of said mouthpiece and the material of said barrel vary inversely relative to each other from L_1 to L_n.

6. The teatcup liner series according to claim 5 wherein in combination the material of said mouthpiece progressively increases in hardness from L_1 to L_n, and the material of said barrel progressively decreases in hardness from L_1 to L_n.

7. A teatcup liner series comprising in combination a family of related teatcup liners, each liner having an upper mouthpiece and a barrel depending downwardly from said upper mouthpiece, said barrel extending axially along an axis for receiving a teat inserted axially thereinto through said mouthpiece, said teatcup liner series comprising n liners L_1 through L_n, a plurality of grooves extending along at least one of said mouthpiece and said barrel, said grooves having a groove width progressively varying from L_1 to L_n.

8. The teatcup liner series according to claim 7 wherein said groove width extends transversely to said axis.

9. The teatcup liner series according to claim 8 wherein said grooves extend along said mouthpiece, and said groove width progressively decreases from L_1 to L_n.

10. The teatcup liner series according to claim 9 wherein said mouthpiece has an upper lip having an aperture therethrough for receiving said teat, and said mouthpiece has a cavity between said lip and said barrel, and said grooves extend along said cavity, and said groove width in said cavity progressively decreases from L_1 to L_n.

11. The teatcup liner series according to claim 8 wherein said grooves extend axially along said barrel, and said groove width progressively increases from L_1 to L_n.

12. The teatcup liner series according to claim 8 wherein said grooves extend along both said mouthpiece and said barrel, said grooves having upper sections in said mouthpiece, and having lower sections in said barrel.

13. The teatcup liner series according to claim 12 wherein in combination said groove width of said upper sections of said grooves progressively decreases from L_1 to L_n, and said groove width of said lower sections of said grooves progressively increases from L_1 to L_n.

14. The teatcup liner series according to claim 7 wherein said groove width extends axially.

15. The teatcup liner series according to claim 14 wherein said mouthpiece has an upper lip having an aperture therethrough for receiving said teat, and said mouthpiece has a cavity between said lip and said barrel, and said grooves extend along said cavity in said mouthpiece.

16. The teacup liner series according to claim 14 wherein said grooves extend along said barrel, and said groove width progressively increases from L_1 to L_n.

17. The teatcup liner series according to claim 14 comprising grooves in both said mouthpiece and said barrel.

18. A teatcup liner comprising an upper mouthpiece and a barrel depending downwardly from said upper mouthpiece, said barrel extending axially along an axis for receiving a teat inserted axially thereinto through said mouthpiece, a plurality of grooves extending along said liner and having a groove width measured transversely to said axis, said grooves having upper sections in said mouthpiece, said grooves having lower sections extending axially along said barrel, said upper sections of said grooves having a different groove width than said lower sections of said grooves.

19. The teatcup liner according to claim 18 wherein said upper sections of said grooves have a larger said groove width than said lower sections of said grooves.

20. The teatcup liner according to claim 18 wherein said upper sections of said grooves have a smaller said groove width than said lower sections of said grooves.

21. The teatcup liner according to claim 18 wherein said mouthpiece has an upper lip having an aperture therethrough for receiving said teat, and said mouthpiece has a cavity between said lip and said barrel, said grooves extend upwardly along said barrel and then along said cavity and said lip to said aperture, and comprising groove transition sections along said cavity transitioning said grooves to said different groove width.

22. A method for making a teatcup liner series having in combination a plurality of related teatcup liners, each liner having an upper mouthpiece, an intermediate barrel defined by a barrel wall, and a lower connecting tube, said barrel extending along an axial direction for receiving a teat inserted axially thereinto through said mouthpiece, said mouthpiece having an upper lip having an aperture therethrough for receiving said teat, said teat liner series comprising n said liners L_1 through L_n, each said liner having an outer profile surface and an inner profile surface, said method comprising:

forming a first of said liners L_1 in a mold having a first removable core C_1 inserted therein, said mold forming the outer profile surface of liner L_1, said core C_1 forming the inner profile surface of liner L_1;

forming a second of said liners L_2 in the same said mold having a second removable core C_2 inserted therein, said mold forming the outer profile surface of liner L_2, said core C_2 forming the inner profile surface of liner L_2;

forming the remainder of said liners through L_n in the same said mold having respective removable cores through C_n inserted therein, said mold forming the outer profile surface of said liners through L_n, said cores through C_n forming the inner profile surfaces of the liners through L_n,

wherein:

the same said mold is used for each of said liners L_1 through L_n;

the outer profile surface is the same for each of said liners L_1 through L_n;

different cores C_1 through C_n are used for said liners L_1 through L_n; and

said inner profile surface is different liner to liner according to C_1 through C_n.

23. The method according to claim 22 wherein said n liners L_1 through L_n have at least one selected parameter which varies liner to liner, and wherein said selected parameter varies liner to liner according to C_1 through C_n.

24. The method according to claim 23 wherein said selected parameter is a dimension.

25. The method according to claim 24 wherein said lip has an axial thickness measured parallel to said axial direction, and said parameter is said axial thickness of said lip.

26. The method according to claim 24 wherein said barrel wall has a transverse thickness measured transversely to said axial direction, and said parameter is said transverse thickness of said barrel wall.

27. The method according to claim 24 wherein said barrel wall has inner surfaces defining a hollow interior with a transverse span thereacross taken

transversely to said axial direction, and wherein said parameter is said transverse span.

28. The method according to claim 24 wherein said lip aperture has a transverse dimension taken transversely to said axial direction and defining a mouthpiece bore, and wherein said parameter is said mouthpiece bore.

29. The method according to claim 24 wherein said mouthpiece has a cavity between said lip and said barrel, and said cavity has a transverse dimension taken transversely to said axial direction and defining a cavity bore, and wherein said parameter is said cavity bore.

30. The method according to claim 24 wherein said mouthpiece has a cavity between said lip and said barrel, said cavity having a volume, and wherein said parameter is said cavity volume.

31. A teatcup liner series comprising in combination a plurality of related teatcup liners, each liner having an upper mouthpiece, an intermediate barrel defined by a barrel wall, and a lower connecting tube, said barrel extending along an axial direction for receiving a teat inserted axially thereinto through said mouthpiece, said mouthpiece having an upper lip having an aperture therethrough for receiving said teat, said teatcup liner series comprising n said liners L_1 through L_n having at least one selected parameter which varies liner to liner, wherein:

said lip has an axial thickness measured parallel to said axial direction;

said barrel wall has a transverse thickness measured transversely to said axial direction;

said parameter is the difference between said axial thickness of said lip and said transverse thickness of said barrel wall; and

said difference increases linearly from L_1 through L_n.

32. A teatcup liner series comprising in combination a plurality of related teatcup liners, each liner having an upper mouthpiece, an intermediate barrel defined by a barrel wall, and a lower connecting tube, said barrel extending along an axial direction for receiving a teat inserted axially thereinto through said mouthpiece, said mouthpiece having an upper lip having an aperture therethrough for receiving said

teat, said teatcup liner series comprising n said liners L_1 through L_n having at least two selected parameters which vary liner to liner, wherein:

said lip has an axial thickness measured parallel to said axial direction;

said barrel wall has a transverse thickness measured transversely to said axial direction;

one of said parameters is the difference between said axial thickness of said lip and said transverse thickness of said barrel wall; and

said difference increases from L_1 through L_n.

33. A teatcup liner series comprising in combination a plurality of related teatcup liners, each liner having an upper mouthpiece, an intermediate barrel defined by a barrel wall, and a lower connecting tube, said barrel extending along an axial direction for receiving a teat inserted axially thereinto through said mouthpiece, said mouthpiece having an upper lip having an aperture therethrough for receiving said teat, said teatcup liner series comprising n said liners L_1 through L_n having at least two selected parameters which vary liner to liner, wherein:

said lip has an axial thickness A measured parallel to said axial direction;

said barrel wall has a transverse thickness B measured transversely to said axial direction;

one of said parameters is A;

another of said parameters is B; and

A and B vary inversely and linearly relative to each other from L_1 through L_n.

34. A teatcup liner series comprising in combination a plurality of related teatcup liners, each liner having an upper mouthpiece, an intermediate barrel defined by a barrel wall, and a lower connecting tube, said barrel extending along an axial direction for receiving a teat inserted axially thereinto through said mouthpiece, said mouthpiece having an upper lip having an aperture therethrough for receiving said teat, said teatcup liner series comprising n said liners L_1 through L_n having at least three selected parameters which vary liner to liner, wherein:

said lip has an axial thickness A measured parallel to said axial direction;

said barrel wall has a transverse thickness B measured transversely to said axial direction;

one of said parameters is A;

another of said parameters is B; and

A and B vary inversely relative to each other from L_1 through L_n.